

INTERNATIONAL SEARCH REPORT

PCT 03/00030

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B21D22/14

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B21D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 23 27 664 A (STROBEL CHRISTIAN) 19 December 1974 (1974-12-19) the whole document	1-17
X	DE 19 64 401 A (MESSERSCHMITT BOELKOW BLOHM) 12 August 1971 (1971-08-12) the whole document	1-17
X	US 5 428 980 A (IIDAKA TSUGUO) 4 July 1995 (1995-07-04) the whole document	1-17
X	DE 34 23 223 C (MANNESMANN AG) 6 February 1986 (1986-02-06) the whole document	1-4, 12-14, 16
	-/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

8 April 2003

Date of mailing of the international search report

23/04/2003

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax (+31-70) 340-3016

Authorized officer

Peeters, L

INTERNATIONAL SEARCH REPORT

PCT/03/00030

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 009, no. 057 (M-363), 13 March 1985 (1985-03-13) & JP 59 193724 A (MITSUBISHI JUKOGYO KK), 2 November 1984 (1984-11-02) abstract	1,2,4,7, 12,13,16
X	----- PATENT ABSTRACTS OF JAPAN vol. 2000, no. 13, 5 February 2001 (2001-02-05) & JP 2000 301246 A (TENSEI KOGYO KK), 31 October 2000 (2000-10-31) abstract	1-3,7, 12,13,16
X	----- PATENT ABSTRACTS OF JAPAN vol. 1998, no. 11, 30 September 1998 (1998-09-30) & JP 10 156445 A (MITSUBISHI ELECTRIC CORP;MITSUBISHI DENKI SHOMEI KK), 16 June 1998 (1998-06-16)	1,12,17
A	the whole document	9
A	----- PATENT ABSTRACTS OF JAPAN vol. 011, no. 368 (M-647), 2 December 1987 (1987-12-02) & JP 62 142032 A (SUMITOMO LIGHT METAL IND LTD), 25 June 1987 (1987-06-25) abstract	5,6,18
A	----- GB 1 394 105 A (BOMCO) 14 May 1975 (1975-05-14)	
A	----- US 3 727 445 A (BAGINSKI M) 17 April 1973 (1973-04-17)	
A	----- EP 1 033 187 A (ECOROLL AG) 6 September 2000 (2000-09-06)	

INTERNATIONAL SEARCH REPORT

PCT 03/00030

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 2327664	A	19-12-1974	DE 2327664 A1	19-12-1974
DE 1964401	A	12-08-1971	DE 1964401 A1	12-08-1971
US 5428980	A	04-07-1995	JP 2678533 B2 JP 5139453 A	17-11-1997 08-06-1993
DE 3423223	C	06-02-1986	DE 3423223 C1	06-02-1986
JP 59193724	A	02-11-1984	NONE	
JP 2000301246	A	31-10-2000	NONE	
JP 10156445 6	A		NONE	
JP 62142032 6	A		NONE	
GB 1394105	A	14-05-1975	NONE	
US 3727445	A	17-04-1973	DE 2142369 A1	02-03-1972
EP 1033187	A	06-09-2000	DE 19908995 A1 EP 1033187 A1 JP 2000246354 A	07-09-2000 06-09-2000 12-09-2000

BEST AVAILABLE COPY